

WEST[Help](#) [Logout](#) [Interrupt](#)[Main Menu](#) [Search Form](#) [Posting Counts](#) [Show S Numbers](#) [Edit S Numbers](#) [Preferences](#) [Cases](#)**Search Results -**[Terms](#) [Documents](#)

[40 and refresh\$ same acid] 1

US Patents Full-Text Database
 US Pre-Grant Publication Full-Text Database
 JPO Abstracts Database
 EPO Abstracts Database
 Derwent World Patents Index

Database: IBM Technical Disclosure Bulletins

Search:

L49

[Refine Search](#)[Recall Text](#)[Clear](#)**Search History**DATE: Monday, March 17, 2003 [Printable Copy](#) [Create Case](#)

<u>Set Name</u>	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u>
side by side			result set
DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ			
<u>L49</u>	l40 and refresh\$ same acid	1	<u>L49</u>
<u>L48</u>	l40 and refresh\$ near5 acid	1	<u>L48</u>
<u>L47</u>	l45 and ((reus\$ near5 (support or substrate)) or eras\$) same acid	74	<u>L47</u>
<u>L46</u>	l45 and acid	302	<u>L46</u>
<u>L45</u>	l43 not l44	635	<u>L45</u>
<u>L44</u>	L43 not l42	148628	<u>L44</u>
<u>L43</u>	((reus\$ near5 (support or substrate)) or eras\$)	149263	<u>L43</u>
<u>L42</u>	L40 and ((reus\$ near5 (support or substrate)) or eras\$)	635	<u>L42</u>
<u>L41</u>	L40 and (reus\$ near5 (support or substrate)) or eras\$	146248	<u>L41</u>

<u>L40</u>	(lithograph\$ or planograph\$) near3 (plate or print\$)	27140	<u>L40</u>
<i>DB=USPT; PLUR=YES; OP=ADJ</i>			
<u>L39</u>	l1 and acid	7	<u>L39</u>
<u>L38</u>	l1 and reus\$ near5 (support or substrate)	11	<u>L38</u>
<u>L37</u>	l1 and (post or after) near5 (eras\$ or refresh\$ or clean\$) same acid	35	<u>L37</u>
<u>L36</u>	l1 and (post or after) near5 (eras\$ or refresh\$ or clean\$)	210	<u>L36</u>
<u>L35</u>	l1 and (acid) same (eras\$ or refresh\$)	9	<u>L35</u>
<i>DB=USPT,PGPB,JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ</i>			
<u>L34</u>	L29 and (acid) same (eras\$ or refresh\$)	4	<u>L34</u>
<u>L33</u>	l32 and l31	2	<u>L33</u>
<u>L32</u>	('6113772' '6152036')[ABPN1,NRPN,PN,WKU]	4	<u>L32</u>
<u>L31</u>	L29 and ((phosphoric near3 acid) or (phosphate near3 salt)) same (clean\$ or eras\$ or refresh\$ or rins\$)	94	<u>L31</u>
<u>L30</u>	L29 and ((phosphoric near3 acid) or (phosphate near3 salt)) near5 (clean\$ or eras\$ or refresh\$ or rins\$)	4	<u>L30</u>
<u>L29</u>	agfa\$.as.	15620	<u>L29</u>
<i>DB=JPAB,EPAB,DWPI; PLUR=YES; OP=ADJ</i>			
<u>L28</u>	L26 and (acid) near10 (eras\$ or refresh\$)	19	<u>L28</u>
<u>L27</u>	L26 and ((phosphoric near3 acid) or (phosphate near3 salt)) near10 (clean\$ or eras\$ or refresh\$ or rins\$)	8	<u>L27</u>
<u>L26</u>	(lithograph\$ or planograph\$) near3 (plate or print\$)	17960	<u>L26</u>
<i>DB=USPT,PGPB; PLUR=YES; OP=ADJ</i>			
<u>L25</u>	L24 and ((phosphoric near3 acid) or (phosphate near3 salt)) near10 (clean\$ or eras\$ or refresh\$ or rins\$)	3	<u>L25</u>
<u>L24</u>	(101/423 OR 101/424 OR 101/425).CCLS.	1040	<u>L24</u>
<i>DB=PGPB; PLUR=YES; OP=ADJ</i>			
<u>L23</u>	L22 and ((phosphoric near3 acid) or (phosphate near3 salt)) near10 (clean\$ or eras\$ or refresh\$ or rins\$)	4	<u>L23</u>
<u>L22</u>	L21 or (101/478)!.CCLS. or 430/302.ccls. ((101/450.1 101/451 101/452 101/453 101/454 101/455 101/456 <u>L21</u> 101/457 101/458 101/459 101/460 101/461 101/462 101/463.1 101/464 101/465 101/466 101/467)!.CCLS.)	234	<u>L22</u>
<i>DB=USPT,PGPB; PLUR=YES; OP=ADJ</i>			
<u>L20</u>	((101/450.1 101/451 101/452 101/453 101/454 101/455 101/456 101/457 101/458 101/459 101/460 101/461 101/462 101/463.1 101/464 101/465 101/466 101/467)!.CCLS.)	2629	<u>L20</u>
<i>DB=USPT; PLUR=YES; OP=ADJ</i>			
<u>L19</u>	l3 and l2	3	<u>L19</u>
<u>L18</u>	l6 and l5	3	<u>L18</u>
<u>L17</u>	l13 and l12	1	<u>L17</u>

<u>L16</u>	l15 and l14	4	<u>L16</u>
<u>L15</u>	('4289838' '6218075' '4400481' '4013008')[PN]	4	<u>L15</u>
<u>L14</u>	L10 and ((acid near3 phosphoric) or (phosphate near3 salt)) near10 (clean\$ or eras\$)	16	<u>L14</u>
<u>L13</u>	('3653886')[PN]	1	<u>L13</u>
<u>L12</u>	L10 and ((acid near3 phosphoric) or (phosphate near3 salt)) near10 (refresh\$ or rins\$)	25	<u>L12</u>
<u>L11</u>	L10 and ((acid near3 phosphoric) or (phosphate near3 salt))	742	<u>L11</u>
<u>L10</u>	L9 or l7	3557	<u>L10</u>
<u>L9</u>	((430/302)!.CCLS.)	1573	<u>L9</u>
<u>L8</u>	L7 and acid near10 (rins\$ or finish\$ or refresh\$)	99	<u>L8</u>
<u>L7</u>	l1 or l4	2532	<u>L7</u>
<u>L6</u>	('6487970' '6484638' '6460458')[PN]	3	<u>L6</u>
<u>L5</u>	L4 and acid	25	<u>L5</u>
<u>L4</u>	((101/478)!.CCLS.)	53	<u>L4</u>
<u>L3</u>	('6218075' '6105500' '5454318')[PN]	3	<u>L3</u>
<u>L2</u>	L1 and (refresh\$ or clean\$ or eras\$) near10 (acid)	66	<u>L2</u>
<u>L1</u>	((101/450.1 101/451 101/452 101/453 101/454 101/455 101/456 101/457 101/458 101/459 101/460 101/461 101/462 101/463.1 101/464 101/465 101/466 101/467)!.CCLS.)	2518	<u>L1</u>

END OF SEARCH HISTORY

WEST**Generate Collection****Print****Search Results - Record(s) 1 through 4 of 4 returned.**

1. Document ID: US 6218075 B1

L16: Entry 1 of 4

File: USPT

Apr 17, 2001

DOCUMENT-IDENTIFIER: US 6218075 B1

TITLE: Photosensitive lithographic printing plate

US PATENT NO. (1):6218075Brief Summary Text (9):

Those methods for conferring water wettability on a support surface have some problems to solve. For instance, poor inking (water log) due to excess of water and ink spreading in the shadow part of an image can occur due to an excess of ink on the lithographic printing plate at the same time depending upon positions along the width direction in a printing machine, thereby failing in providing prints of good quality. In still another case where a great number of copies are printed, stains are generated on the prints with the progress of printing operations since the non-image area of the plate is gradually rendered hydrophobic by the printing ink. In order to recover from this hydrophobic condition, a cleaner containing as main components a support etching agent, such as phosphoric acid, and an ink dissolving agent, such as an aliphatic hydrocarbon, is usually employed. However, the use of such a cleaner causes deterioration of impression capacity in negative working presensitized plates formed using as the support a material which has undergone anodic oxidation and then treatment with an aqueous solution of alkali metal silicate, because the adhesion between the photosensitive layer and the support is weakened by the cleaner. In other negative working presensitized plates formed using as the support an aluminum plate which has undergone anodic oxidation and then treatment with an aqueous solution of polyvinylphosphonic acid adjusted to pH 2.5 or higher, the cleaner used has no bad effect on their impression capacity, but in the case where water is used in a reduced amount as compared with a standard amount, the tendency of causing stains by ink spreading in the image area and stains in the non-image area on prints is increased, and when the amount of water is increased after the stains generate in image area or non-image area, the tendency of causing the prints to suffer from the stains (so-called "water-ink balance scum") is increased. In still another case as described in Example 1 of JP-A-60-194096, where the negative working presensitized plate is formed using the support which has been anodized and then treated with an aqueous solution of alkali metal silicate and further undergone after-treatment with an aqueous solution of polyvinylphosphonic acid, the use of the cleaner causes deterioration of impression capacity, in analogy with the case of using the support treated with an aqueous solution of alkali metal silicate alone.

Current US Cross Reference Classification (1):101/466

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Drawn Desc	Image								

KWIC

2. Document ID: US 4400481 A

L16: Entry 2 of 4

File: USPT

Aug 23, 1983

DOCUMENT-IDENTIFIER: US 4400481 A

TITLE: Finisher and preserver for lithographic plates

US PATENT NO. (1):4400481Brief Summary Text (22):

The concentration of the buffering system will vary somewhat depending upon what pH is needed to enhance the stability of any particular specific formulation of the finisher and preserver composition according to this invention; for example, the preferred pH for a particular advantageous composition formulation is a pH of 4.3, and the preferred buffering system maintains the pH between about 4.1 and 4.5 under normal storage and use conditions. In addition to accomplishing this needed pH control, the buffering system according to this invention also assists, particularly by the inclusion of trisodium phosphate at its preferred concentration ratio, in the plate cleaning aspects of this invention; the buffering system further aids, particularly by the inclusion of phosphoric acid at its preferred concentration ratio, in desensitizing the non-image areas of the exposed plate and maintaining them hydrophilic as well as in preventing ink adherence and scumming. Particularly preferred is a buffering system including monosodium phosphate, trisodium phosphate and phosphoric acid at a weight ratio of 1:3:3 within an overall concentration range of between about 0.5 and 5 weight percent, preferably between about 1 and 3 weight percent of the total aqueous composition, the concentration of monosodium phosphate generally ranging between about 0.1 and 0.5 weight percent, and the concentration of each of trisodium phosphate and phosphoric acid generally ranging between about 0.3 and 2 weight percent thereof.

Current US Cross Reference Classification (1):101/463.1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc Image									KWIC

 3. Document ID: US 4289838 A

L16: Entry 3 of 4

File: USPT

Sep 15, 1981

DOCUMENT-IDENTIFIER: US 4289838 A

TITLE: Diazo-unsaturated monomer light sensitive compositions

US PATENT NO. (1):4289838Brief Summary Text (12):

U.S. Pat. No. 3,660,097 describes the use of compositions containing a linear polyurethane resin and a negative-- or positive--acting diazonium compound. Some disadvantages of these compositions which are concomitant with their advantages are the difficulty of dissolving the compositions in a solvent in order to coat them on a substrate. Consequently, development of, e.g., an exposed lithographic plate to remove non-image areas is rendered difficult because of lack of a requisite for lithographic plates, i.e., a clear-cut differential in solubility between image and non-image areas. Freshly coated plates which have been exposed require a good deal of scrubbing in order to remove the non-image areas of the coated composition. Aged plates would require even more scrubbing. Aqueous developers will develop the plates, but the developers should contain sizable amounts of solvents, e.g., n-propyl alcohol, benzyl alcohol, cyclohexanone, etc. in order to successfully develop the plate so that it has clean, non-ink receptive, non-image areas. Many times it is found helpful to formulate a developer containing an acid, e.g., phosphoric, in order to clean out the "background",

i.e., the non-image areas of the plate. Relative to lithographic plates coated with the light-sensitive compositions of this invention, those of U.S. Pat. No. 3,660,097 are "slower", i.e., they require longer exposure times.

Current US Cross Reference Classification (7) :430/302

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc Image									KWIC

 4. Document ID: US 4013008 A

L16: Entry 4 of 4

File: USPT

Mar 22, 1977

DOCUMENT-IDENTIFIER: US 4013008 A

TITLE: Methods and solutions for improvement of offset printing

US PATENT NO. (1) :4013008Detailed Description Text (27) :

After use, two plates which had had 87,000 impressions taken from them onto newsprint by the offset process were coated with a solution containing approximately 13.9 grams/liter of sodium hexametaphosphate after being cleaned. They were then stored in the press room for 15 days. At the end of the storage time, the plates were wiped with 6% phosphoric acid and cleaned up very well for use.

Current US Original Classification (1) :101/451

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc Image									KWIC

Terms	Documents
115 and 114	4

Display Format: [Previous Page](#) [Next Page](#)

WEST[Generate Collection](#)[Print](#)**Search Results - Record(s) 1 through 1 of 1 returned.**

1. Document ID: US 3653886 A

L17: Entry 1 of 1

File: USPT

Apr 4, 1972

DOCUMENT-IDENTIFIER: US 3653886 A

TITLE: PREPARATION OF PRINTING FORMS BY THE IONIC POLYMERIZATION OF PHOTOCODUCTORS

US PATENT NO. (1):3653886Detailed Description Text (24):

After treatment with the alkaline liquid, the printing plate is advantageously rinsed with water and, if desired, the hydrophilic properties are further increased by wiping it over with dilute phosphoric acid solution. After inking up with greasy ink, prints can be made therefrom in a conventional manner in planographic printing machines.

Current US Cross Reference Classification (1):101/456Current US Cross Reference Classification (2):101/463.1[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [KMC](#) |
[Draw Desc](#) | [Image](#)[Generate Collection](#)[Print](#)

Terms	Documents
l13 and l12	

Display Format: [KWIC](#) | [Change Format](#)[Previous Page](#)[Next Page](#)

WEST[Generate Collection](#)[Print](#)**Search Results - Record(s) 1 through 3 of 3 returned.** 1. Document ID: US 6218075 B1

L19: Entry 1 of 3

File: USPT

Apr 17, 2001

DOCUMENT-IDENTIFIER: US 6218075 B1

TITLE: Photosensitive lithographic printing plate

US PATENT NO. (1):6218075Brief Summary Text (9):

Those methods for conferring water wettability on a support surface have some problems to solve. For instance, poor inking (water log) due to excess of water and ink spreading in the shadow part of an image can occur due to an excess of ink on the lithographic printing plate at the same time depending upon positions along the width direction in a printing machine, thereby failing in providing prints of good quality. In still another case where a great number of copies are printed, stains are generated on the prints with the progress of printing operations since the non-image area of the plate is gradually rendered hydrophobic by the printing ink. In order to recover from this hydrophobic condition, a cleaner containing as main components a support etching agent, such as phosphoric acid, and an ink dissolving agent, such as an aliphatic hydrocarbon, is usually employed. However, the use of such a cleaner causes deterioration of impression capacity in negative working presensitized plates formed using as the support a material which has undergone anodic oxidation and then treatment with an aqueous solution of alkali metal silicate, because the adhesion between the photosensitive layer and the support is weakened by the cleaner. In other negative working presensitized plates formed using as the support an aluminum plate which has undergone anodic oxidation and then treatment with an aqueous solution of polyvinylphosphonic acid adjusted to pH 2.5 or higher, the cleaner used has no bad effect on their impression capacity, but in the case where water is used in a reduced amount as compared with a standard amount, the tendency of causing stains by ink spreading in the image area and stains in the non-image area on prints is increased, and when the amount of water is increased after the stains generate in image area or non-image area, the tendency of causing the prints to suffer from the stains (so-called "water-ink balance scum") is increased. In still another case as described in Example 1 of JP-A-60-194096, where the negative working presensitized plate is formed using the support which has been anodized and then treated with an aqueous solution of alkali metal silicate and further undergone after-treatment with an aqueous solution of polyvinylphosphonic acid, the use of the cleaner causes deterioration of impression capacity, in analogy with the case of using the support treated with an aqueous solution of alkali metal silicate alone.

Brief Summary Text (14):

The main reason for attainment of the present object is probably explained as follows: The surface of an aluminum support is first activated by the etching with an acidic aqueous solution, and thereto a polyvinylphosphonic acid is adsorbed. As the aqueous solution used herein has a very low pH value, the polyvinylphosphonic acid can be adsorbed on the support surface in a large amount, compared with the case of using an aqueous solution having a relatively high pH value, and so the support surface is covered with the polyvinylphosphonic acid to acquire sufficient water wettability. Even when a cleaner is used, on the other hand, such a rather thick covering of the polyvinylphosphonic acid inhibits the cleaner from penetrating into the interface of the photosensitive layer and the support. Thus, the adhesion between the support and the photosensitive layer undergoes no deterioration, and so the lithographic printing plate suffers no deterioration in impression capacity and, at the same time, the

non-image area can retain sufficient water wettability to be free from deterioration of the water-ink balance scum.

Detailed Description Text (2):

The surface of a JIS 1050 aluminum sheet was subjected to a brush graining treatment using a rotary nylon brush while supplying thereto an aqueous suspension of pumice. The thus grained aluminum sheet had a surface roughness of 0.5 .mu.m (expressed in center-line average roughness Ra). After it was washed, the aluminum sheet was etched by dipping in 10% aqueous sodium hydroxide heated to 70.degree. C. until the aluminum dissolved amounted to 6 g/m.sup.2, and then washed. Further, the etched sheet was neutralized by 1-minute dipping in a 30% aqueous solution of nitric acid, and thoroughly rinsed with water. Furthermore, the resulting sheet was subjected to a 20-second electrolytic surface-roughening treatment in a 0.7% aqueous solution of nitric acid under the square-wave alternating electric potential having an anode voltage of 13 volt and a cathode voltage of 6 volt. The thus roughened surface was cleaned by dipping in a 20% solution of sulfuric acid heated to 50.degree. C., and then washed. Furthermore, the aluminum sheet was anodically oxidized in a 20% aqueous solution of sulfuric acid by sending thereto a direct electric current at the current density of 5 A/dm.sup.2, and the porous anodized layer having a weight of 2.5 g/m.sup.2 was obtained by controlling the electrolysis time, thereby preparing a substrate [Substrate (I)].

Current US Cross Reference Classification (1):

101/466

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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2. Document ID: US 6105500 A

L19: Entry 2 of 3

File: USPT

Aug 22, 2000

DOCUMENT-IDENTIFIER: US 6105500 A

TITLE: Hydrophilized support for planographic printing plates and its preparation

US PATENT NO. (1):

6105500

Brief Summary Text (66):

A support material may be pretreated prior to the application of said hydrophilic layer. Where the support material is aluminum or an aluminum alloy, it may be pretreated by one or more conventional methods used in the surface treatment of aluminum, for example caustic etch cleaning, acid cleaning, brush graining, mechanical graining, slurry graining, sand blasting, abrasive cleaning, electrocleaning, solvent degreasing, ultrasonic cleaning, alkali non-etch cleaning, primer coating, grit/shot blasting and electrograining. Details of such methods are provided in: "The surface treatment and finishing of aluminium and its alloys" S. Wernick, R. Pinner and P. G. Sheasby published by Finishing Publication Ltd., ASM International, 5th edition 1987.

Current US Original Classification (1):

101/455

Current US Cross Reference Classification (1):

101/459

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc	Image								KMC

KMC

3. Document ID: US 5454318 A

L19: Entry 3 of 3

File: USPT

Oct 3, 1995

DOCUMENT-IDENTIFIER: US 5454318 A
TITLE: Erasable printing form

US PATENT NO. (1):
5454318

Detailed Description Text (4):

For wet offset printing, a reusable printing form is produced in that the non-image locations 4 of a hydrophobic printing form, whose image locations are masked by a masking material 3 and which has a layer, according to the invention, with strong micro-dipoles, are rendered hydrophilic by rubbing them with a hydrophilizing agent. The hydrophilizing agent is preferably a plate cleaner commonly used in offset printing technique. Such plate cleaners are known e.g. from SU 42 97 485 A or from DE 31 17 358 A1 and DE 34 01 159 A1. The plate cleaners contain e.g. orthophosphoric acid, silicates, nonionic surfactants and long-chain hydrocarbons. Such plate cleaners were formerly used only for cleaning pre-coated aluminum offset printing plates.

Current US Original Classification (1):
101/453

Current US Cross Reference Classification (1):
101/451

Current US Cross Reference Classification (2):
101/465

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	KMC
Draw Desc Image										

[Generate Collection](#) [Print](#)

Terms	Documents
I3 and I2	3

Display Format: [KWIC](#) [Change Format](#)

[Previous Page](#) [Next Page](#)

WEST**Generate Collection****Print****Search Results - Record(s) 1 through 2 of 2 returned.** 1. Document ID: US 6152036 A

L33: Entry 1 of 2

File: USPT

Nov 28, 2000

DOCUMENT-IDENTIFIER: US 6152036 A

TITLE: Heat mode sensitive imaging element for making positive working printing plates

US PATENT NO. (1):6152036Assignee Name (1):Agfa-Gevaert, N.V.Brief Summary Text (57):

In the imaging element according to the present invention, the lithographic base may be an anodized aluminum for all embodiments. A particularly preferred lithographic base is an electrochemically grained and anodized aluminum support. The anodized aluminum support may be treated to improve the hydrophilic properties of its surface. For example, the aluminum support may be silicated by treating its surface with sodium silicate solution at elevated temperature, e.g. 95.degree. C. Alternatively, a phosphate treatment may be applied which involves treating the aluminum oxide surface with a phosphate solution that may further contain an inorganic fluoride. Further, the aluminum oxide surface may be rinsed with a citric acid or citrate solution. This treatment may be carried out at room temperature or may be carried out at a slightly elevated temperature of about 30 to 50.degree. C. A further interesting treatment involves rinsing the aluminum oxide surface with a bicarbonate solution. Still further, the aluminum oxide surface may be treated with polyvinylphosphonic acid, polyvinylmethylphosphonic acid, phosphoric acid esters of polyvinyl alcohol, polyvinylsulphonic acid, polyvinylbenzenesulphonic acid, sulphuric acid esters of polyvinyl alcohol, and acetals of polyvinyl alcohols formed by reaction with a sulphonated aliphatic aldehyde. It is further evident that one or more of these post treatments may be carried out alone or in combination. More detailed descriptions of these treatments are given in GB-A-1 084 070, DE-A-4 423 140, DE-A-4 417 907, EP-A-659 909, EP-A-537 633, DE-A-4 001 466, EP-A-292 801, EP-A-291 760 and U.S. Pat. No. 4,458,005.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
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KMC

 2. Document ID: US 6113772 A

L33: Entry 2 of 2

File: USPT

Sep 5, 2000

DOCUMENT-IDENTIFIER: US 6113772 A

TITLE: Method for making lithographic printing plates based on electroplating

US PATENT NO. (1):6113772

Assignee Name (1):
Aqfa-Gevaert, N.V.

Brief Summary Text (15):

According to the present invention, the hydrophilic metallic layer can consist of any metal that is hydrophilic. Preferred is an aluminum layer, more preferably an electrochemically grained and anodised aluminum support. Most preferably said aluminum support is grained in nitric acid, yielding imaging elements with a higher sensitivity. According to the present invention, an anodised aluminum support may be treated to improve the hydrophilic properties of its surface. For example, the aluminum support may be silicated by treating its surface with sodium silicate solution at elevated temperature, e.g. 95.degree. C. Alternatively, a phosphate treatment may be applied which involves treating the aluminum oxide surface with a phosphate solution that may further contain an inorganic fluoride. Further, the aluminum oxide surface may be rinsed with a citric acid or citrate solution. This treatment may be carried out at room temperature or can be carried out at a slightly elevated temperature of about 30 to 50.degree. C. A further interesting treatment involves rinsing the aluminum oxide surface with a bicarbonate solution. Still further, the aluminum oxide surface may be treated with polyvinylphosphonic acid, polyvinylmethylphosphonic acid, phosphoric acid esters of polyvinyl alcohol, polyvinylsulphonic acid, polyvinylbenzenesulphonic acid, sulphuric acid esters of polyvinyl alcohol, and acetals of polyvinyl alcohols formed by reaction with a sulphonated aliphatic aldehyde. It is further evident that one or more of these post treatments may be carried out alone or in combination.

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#)

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[Draw Desc](#) | [Image](#)

[Generate Collection](#)

[Print](#)

Terms	Documents
I32 and I31	2

Display Format:

[Previous Page](#) [Next Page](#)

WEST**Generate Collection****Print****Search Results - Record(s) 1 through 3 of 3 returned.**

1. Document ID: US 6487970 B2

L18: Entry 1 of 3

File: USPT

Dec 3, 2002

DOCUMENT-IDENTIFIER: US 6487970 B2

TITLE: Method of lithographic printing with a reusable substrate

US PATENT NO. (1):6487970Brief Summary Text (18):

The cleaning liquid used in the method of the present invention contains an amide. Suitable examples of the amide are: N,N-dimethylacetamide, N-methylacetamide, N,N-diethylacetamide, N,N-dipropylacetamide, N,N-dimethylpropionamide, N,N-diethylbutyramide N-methyl-N-ethyl-propionamide, N-methylformamide, N,N-dimethylformamide, N-methyl-formamide, 1,3-dimethyl-2-imidazolidinone, and acetohydroxamic acid. Dimethylformamide and especially 2-N-methylpyrrolidone are highly preferred. The amide can be a liquid amide which can be supplied to the printing master as an essentially pure liquid. More preferably, the cleaning liquid is an aqueous solution comprising an amide in an amount between 1% and 50% by weight, more preferably between 2% to 30% by weight and most preferably between 5% and 15% by weight.

Brief Summary Text (26):

Suitable hydrophilic binders for use in the present invention are preferably water-soluble (co)polymers for example synthetic homo- or copolymers such as polyvinylalcohol, a poly(meth)acrylic acid, a poly(meth)acrylamide, a polyhydroxyethyl(meth)acrylate, a polyvinylmethyleneether or natural binders such as gelatin, a polysaccharide such as e.g. dextran, pullulan, cellulose, arabic gum, alginic acid, inuline or chemically modified inuline.

Detailed Description Text (5):

A 0.30 mm thick aluminium foil was degreased by immersing the foil in an aqueous solution containing 5 g/l of sodium hydroxide at 50.degree. C. and rinsed with demineralised water. The foil was then electrochemically grained using an alternating current in an aqueous solution containing 4 g/l of hydrochloric acid, 4 g/l of hydroboric acid and 5 g/l of aluminium ions at a temperature of 35.degree. C. and a current density of 1200 A/m.sup.2 to form a surface topography with an average center-line roughness Ra of 0.5 m.mu..

Detailed Description Text (6):

After rinsing with demineralised water, the aluminium foil was etched with an aqueous solution containing 300 g/l of sulphuric acid at 60.degree. C. for 180 seconds and rinsed with demineralised water at 25.degree. C. for 30 seconds.

Detailed Description Text (7):

The foil was subsequently subjected to anodic oxidation in an aqueous solution containing 200 g/l of sulphuric acid at a temperature of 45.degree. C., a voltage of about 10 V and a current density of 150 A/m.sup.2 during about 300 seconds to form an anodic oxidation film of 3.0 g/m.sup.2 of Al.sub.2 O.sub.3, then washed with demineralised water and post-treated with a solution containing polyvinylphosphonic acid and subsequently with a solution containing aluminium trichloride, rinsed with demineralised water at 20.degree. C. during 120 seconds and dried.

Detailed Description Text (9):

A 2.61% solution in water was prepared by mixing polystyrene latex, dye I and a

hydrophilic binder. After spraying and drying, the resulting layer contained 75% of the polystyrene latex, 10% of the dye I and 15% of GLASCOL E 15.TM.. GLASCOL E 15.TM. is a polyacrylic acid, commercially available at N.V. Allied Colloids Belgium.

Current US Cross Reference Classification (2) :

101/478

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw	Desc	Image							KWIC

2. Document ID: US 6484638 B2

L18: Entry 2 of 3

File: USPT

Nov 26, 2002

DOCUMENT-IDENTIFIER: US 6484638 B2

TITLE: Method of offset printing with a reusable substrate

US PATENT NO. (1) :

6484638

Brief Summary Text (27) :

Suitable hydrophilic binders for use in the present invention are preferably water-soluble (co)polymers for example synthetic homo- or copolymers such as polyvinylalcohol, a poly(meth)acrylic acid, a poly(meth)acrylamide, a polyhydroxyethyl(meth)acrylate, a polyvinylmethylether or natural binders such as gelatin, a polysaccharide such as e.g. dextran, pullulan, cellulose, arabic gum, alginic acid, inuline or chemically modified inuline.

Detailed Description Text (5) :

A 0.30 mm thick aluminium foil was degreased by immersing the foil in an aqueous solution containing 5 g/l of sodium hydroxide at 50.degree. C. and rinsed with demineralised water. The foil was then electrochemically grained using an alternating current in an aqueous solution containing 4 g/l of hydrochloric acid, 4 g/l of hydroboric acid and 5 g/l of aluminium ions at a temperature of 35.degree. 0C. and a current density of 1200 A/m.² to form a surface topography with an average center-line roughness Ra of 0.5 m.mu..

Detailed Description Text (6) :

After rinsing with demineralised water, the aluminium foil was etched with an aqueous solution containing 300 g/l of sulphuric acid at 60.degree. C. for 180 seconds and rinsed with demineralised water at 25.degree. C. for 30 seconds.

Detailed Description Text (7) :

The foil was subsequently subjected to anodic oxidation in an aqueous solution containing 200 g/l of sulphuric acid at a temperature of 45.degree. C., a voltage of about 10 V and a current density of 150 A/m.² during about 300 seconds to form an anodic oxidation film of 3.0 g/m.² of Al.₂O.₃, then washed with demineralised water and post-treated with a solution containing polyvinylphosphonic acid and subsequently with a solution containing aluminium trichloride, rinsed with demineralised water at 20.degree. C. during 120 seconds and dried.

Detailed Description Text (9) :

A 2.61% solution in water was prepared by mixing polystyrene latex, dye I and a hydrophilic binder. After spraying and drying, the resulting layer contained 75% of the polystyrene latex, 10% of the dye I and 15% of GLASCOL E 15.TM., GLASCOL E 15.TM. is a polyacrylic acid, commercially available at N.V. Allied Collids Belgium.

Current US Cross Reference Classification (2) :

101/478

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc Image					KMC				

3. Document ID: US 6460458 B2

L18: Entry 3 of 3

File: USPT

Oct 8, 2002

DOCUMENT-IDENTIFIER: US 6460458 B2

TITLE: Method of planographic printing with a reusable substrate

US PATENT NO. (1):
6460458

Brief Summary Text (26):

Suitable hydrophilic binders for use in the present invention are preferably water-soluble (co)polymers for example synthetic homo- or copolymers such as polyvinylalcohol, a poly(meth)acrylic acid, a poly(meth)acrylamide, a polyhydroxyethyl(meth)acrylate, a polyvinylmethylether or natural binders such as gelatin, a polysaccharide such as e.g. dextran, pullulan, cellulose, arabic gum, alginic acid, inulin or chemically modified inulin.

Detailed Description Text (5):

A 0.30 mm thick aluminium foil was degreased by immersing the foil in an aqueous solution containing 5 g/l of sodium hydroxide at 50.degree. C. and rinsed with demineralised water. The foil was then electrochemically grained using an alternating current in an aqueous solution containing 4 g/l of hydrochloric acid, 4 g/l of hydroboric acid and 5 g/l of aluminium ions at a temperature of 35.degree. C. and a current density of 1200 A/m.sup.2 to form a surface topography with an average center-line roughness Ra of 0.5 m.mu..

Detailed Description Text (6):

After rinsing with demineralised water, the aluminium foil was etched with an aqueous solution containing 300 g/l of sulphuric acid at 60.degree. C. for 180 seconds and rinsed with demineralised water at 25.degree. C. for 30 seconds.

Detailed Description Text (7):

The foil was subsequently subjected to anodic oxidation in an aqueous solution containing 200 g/l of sulphuric acid at a temperature of 45.degree. C., a voltage of about 10 V and a current density of 150 A/m.sup.2 during about 300 seconds to form an anodic oxidation film of 3.0 g/m.sup.2 of Al.sub.2 O.sub.3, then washed with demineralised water and post-treated with a solution containing polyvinylphosphonic acid and subsequently with a solution containing aluminium trichloride, rinsed with demineralised water at 20.degree. C. during 120 seconds and dried.

Detailed Description Text (9):

A 2.6% solution in water was prepared by mixing polystyrene latex, dye I and a hydrophilic binder. After spraying and drying, the resulting layer contained 75% of the polystyrene latex, 10% of the dye I and 15% of GLASCOL E 15.TM.. GLASCOL E 15.TM. is a polyacrylic acid, commercially available at N.V. Allied Colloids Belgium.

Current US Original Classification (1):

101/478

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments
Draw Desc Image					KMC				

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L Number	Hits	Search Text	DB	Time stamp
1	6	("6487970" or "6484638" or "6460458").pn.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/03/17 12:31
2	4	("4880555" "5291827" "6182571" "6237493").PN.	USPAT	2003/03/17 12:31
3	8	("4396703" "4399243" "4829897" "5449474" "5713287" "6182571" "6237493" "6261381").PN.	USPAT	2003/03/17 12:31
4	7	("3921527" "4880555" "5203926" "5291827" "5925496" "6237493" "6298780").PN.	USPAT	2003/03/17 12:32
5	0	1118470.URPN.	USPAT	2003/03/17 12:32
6	1	2001-482518.NRAN.	DERWENT	2003/03/17 12:32
7	14	("6237493" or "6182571" or "5291827" or "4880555" or "6261381" or "5713287" or "5449474" or "4829897" or "4399243" or "4396703" or "6298780" or "5925496" or "5203926" or "3921527").pn.	USPAT	2003/03/17 12:33
8	4	((("6237493" or "6182571" or "5291827" or "4880555" or "6261381" or "5713287" or "5449474" or "4829897" or "4399243" or "4396703" or "6298780" or "5925496" or "5203926" or "3921527").pn.) and acid same (clean\$ or eras\$ or refresh\$ or rins\$)	USPAT	2003/03/17 12:40
9	6	((("4400481") or ("4013008") or ("6353886") or ("6218075") or ("5454318") or ("6152036")).PN.	USPAT	2003/03/17 12:42
10	6	((("4400481") or ("4013008") or ("3653886") or ("6218075") or ("5454318") or ("6152036")).PN.	USPAT	2003/03/17 12:43

US-PAT-NO: 4880555

DOCUMENT-IDENTIFIER: US 4880555 A

TITLE: Enzyme hydrolyzed maltodextrin containing
finisher/preserver/cleaner
composition for lithographic printing plates

----- KWIC -----

A composition for finishing, preserving and cleaning
lithographic printing
plates composed of a polyol having a molecular weight in
the range of from
about 50 to about 2,000; a maltodextrin obtained by the
enzyme hydrolysis of
corn or potato starch, a mixture of a C._{sub.18} to C._{sub.30}
alcohol and an
aminated, aliphatic C._{sub.8} to C._{sub.24} alcohol sulfate
with a ratio of alcohol
to sulfate ranging from about 1:1 to about 5:1; and a
composition of
hydrocarbons having a boiling point in the range of from
about 175.degree. F.
to about 500.degree. F., and a flash point of above about
100.degree. F.,
preferably containing 100% aliphatic components; and a
substituted
phenoxy(poly(oxyethylene))ethanol having a
hydrophile/lipophile balance of from
about 8 to about 15; and a mono-, di- or tri-ethanolamine;
and water; and an
acid to impart a pH to the composition of from about 2.5 to
about 6.5; and a
buffer to maintain the pH, and preferably a
bacteriostat/fungistat component.

It is known in the art that after repeated use of the plate
and ageing of the
surface, that the non-image areas are less able to repel
ink and may tend to
retain some of this ink. This is called scumming.
Therefore, if the surface
properties between the image and non-image areas are

disturbed, for example, if the hydrophilic property of the non-image areas is deteriorated for some reason, inks are likely to adhere to such areas with deteriorated hydrophilicity and cause background stains. Such background stains are formed under a variety of conditions, for example where a lithographic printing plate is subjected to a burning-in treatment for the purpose of increasing length of run, or in the case where the surface of a plate is allowed to stand in the air without protecting it with a desensitizing gum. It is usual in the art that lithographic printing plates which are ready for printing must be subjected to such a protective finishing treatment before they are stored for prolonged periods of time. As a typical treating solution a gum arabic solution is very widely used. Dextrin and polyvinyl alcohol solutions are also known. U.S. Pat. No. 4,033,919 teaches a combination of polymers of acrylamide containing carboxy groups with acids as desensitizing agents for plates. After treatment with a desensitizing solution, printing plates are usually stored for some time. It has been found that the oleophilic character, i.e. ink receptivity of the image areas of the plate is often considerably reduced upon storage, so that a large amount of paper is wasted on roll-up. Of course, in prolonged storage of desensitized plates, undesired reactions may also occur between the desensitizing material and the surface of the support, and as a result, the hydrophilic properties of the plate are impaired. Therefore, a good finisher/preserver must function to desensitize the non-image areas to assure that they will not accept greasy ink upon printing, and prevent blinding in the image areas. It must also prevent oxidation of the background areas of the plate during storage or while waiting for press mounting.

It must also be quickly removable from the plate so that it will not cause production delays. Typically a finisher must be quickly removable by a water rinse or most preferably must be removable by the fountain solution on the press. Quick roll-up is then essential in order to prevent paper waste and reduced production time.

Compositions for finishing, cleaning and preserving lithographic printing plates are well known in the art as exemplified by U.S. Pat. No. 4,162,920. Such are generally composed of an emulsion of an aqueous phase and a solvent phase. Principally the solvent phase dissolves the greasy inks built up on the plate, and the aqueous phase deposits on the image and non-image areas to protect them from atmospheric attack and to restore hydrophilicity to the background areas. It is important to produce an emulsion that is stable, i.e. the aqueous and solvent phases do not readily separate out.

In this regard it is known to use gum arabic and dextrins, such as tapioca dextrin in the aqueous phase. Dextrins are obtained through either acid or alkaline hydrolysis of starches. Such dextrins are typically HCl hydrolyzed tapioca starches. It has now been unexpectedly found that when a finisher, preserver, cleaner emulsion is formulated with a maltodextrin prepared by enzyme hydrolysis of corn or potato starch, that emulsion stability is increased dramatically.

The composition then contains sufficient water as the balance to formulate an effective finishing, preserving and cleaning composition for lithographic printing plates. Soft water or deionized water are most preferred. The composition also contains a sufficient amount of an organic or inorganic acid

to impart a pH to the composition of from about 2.5 to about 6.5. Such acids non-exclusively include citric, phosphoric, ascorbic, sorbic, tartaric, phthalic, boric and sulfuric acids. A more preferred pH range is from about 4 to about 5 and about 4.5 being the most preferred case.

US-PAT-NO: 4399243

DOCUMENT-IDENTIFIER: US 4399243 A

TITLE: Cleaner and scratch remover composition

----- KWIC -----

A composition is provided which cleans, conditions, removes scratches, and finishes lithographic plates, the composition being an emulsion of an aqueous phase in an oil phase, the oil phase including a highly penetrating solvent such as mineral spirits, an oleophilic acid, and an emulsifying surfactant such as a non-ionic benzene sulfonate, while the aqueous phase includes a hydrophilic synthetic desensitizer such as a modified polyacrylamide, a gum desensitizer, a desensitizing agent such as phosphoric acid or derivatives thereof, a nitrate salt, and water. These compositions perform as plate cleaners, conditioners and scratch removers when put to use in the press room, and also are typically suitable for use as finishers for exposed and developed plates within the plate making room.

Accordingly, there has been brought about a need for a composition that is multifunctional in that it is suitable for finishing in association with plate making operations without requiring subsequent lengthy roll-up while at the same time also be a superior one-step cleaner and scratch remover for use in the press room that does not require a preliminary cleaning step necessitating wasteful plate cleaning pre-printing runs. By the present invention, a single composition is provided which is suitable for use as a plate finisher as well

as a plate cleaner, either such use being one in which such superior results are accomplished without any extensive roll-up being required. The compositions of the present invention are emulsions of an oil phase and of an aqueous phase, the oil phase including an oleophilic acid, a highly penetrating solvent, and a surfactant for emulsifying the oil phase and the aqueous phase together. The aqueous phase includes a hydrophilic synthetic resin desensitizer, a gum desensitizer, a desensitizing agent of phosphoric acid and/or derivatives thereof, an alkaline nitrate salt, and water, the compounds of the emulsion being combined in particularly advantageous relative ratios to bring about the superior multifunctional attributes of this invention.